WHAT IS CLAIMED IS:

1. An electrode comprising a porous conductive substrate as well as an electrode active material and a conductive auxiliary filled in the pores in the substrate.

2. The electrode as claimed in Claim 1, wherein the porous conductive substrate is a carbon fiber sheet.

3. The electrode as claimed in Claim 1, wherein the porous conductive substrate before filling has a porosity of 50 to 85 %.

4. The electrode as claimed in Claim 1, wherein the porous conductive substrate has a filling rate of 5 % or more.

5. The electrode as claimed in Claim 1, wherein a rate of the conductive auxiliary to the electrode active material is 50 % by weight or less.

6. The electrode as claimed in Claim 1, wherein the electrode active material is a proton-conducting compound which is subjected to an oxidation-reduction reaction with ions in an electrolyte.

7. The electrode as claimed in Claim 1, comprising at least one of particulate carbon and fibrous carbon as the conductive auxiliary.

8. An electrochemical cell, wherein at least one of electrodes is the electrode as claimed in any of Claims 1 to 7.

9. The electrochemical cell as claimed in Claim 8, wherein the electrochemical cell is a secondary battery.

10. The electrochemical cell as claimed in Claim 8, wherein the electrochemical cell is a capacitor.